

REMARKS

Claims 1-4 and 6-13 were rejected under 35 U.S.C. § 103 as being unpatentable over Malcarne in view of Noone. This rejection is traversed for the following reasons.

In applying the references the Examiner acknowledges that Malcarne fails to teach providing material to the polymer jacket to give it conductive properties. The Examiner cites to Noone for teaching this feature, and the Examiner cites to layer 16. Layer 16 in Noone is a conductive layer (column 8, lines 18-32), but is not disposed on the outside surface of the tubing, but rather is a bonding layer used to secure the inner layer 14 to outer layer 12. The outer layer 12 is not described as being conductive. Thus, Noone fails to disclose an outer jacket having conductive properties.

Applicant submits that it would not have been obvious to use a bonding layer, such as that taught by Noone, in the tubing of Malcarne. Malcarne discloses that the reinforcement material may be directly bonded to the tubing 12 (see paragraph [0015]). Thus, there is no need in Malcarne for a bonding layer 16 as taught by Noone. Accordingly, one of ordinary skill in the art would not have been motivated to combine Malcarne and Noone as proposed by the Examiner.

Furthermore, claims 1 and 13 recite numeric values for features of the conductive polymer jacket. In rejecting claim 13, the Examiner states that the specific resistivity "is considered to be an obvious design choice of mechanical expedients where one skilled in the art would only require routine experimentation to arrive at optimum working values such is merely a choice of mechanical expedients." Applicant respectfully disagrees with this analysis on factual and legal grounds.

With respect to factual grounds, Noone is not concerned with volume resistivity. Rather, Noone specifically addresses surface resistivity and references the range of 10E4 to 10E9 ohm/sq. Additionally, Noone specifically states that it is capable of dissipation of electrostatic charge. Traditionally, this refers to surface resistivity. Surface resistivity is defined as the ratio of the dc voltage drop per unit length to the surface current per unit width for electric current flowing across a surface, in dissipative material, charges flow to ground more slowly. Noone purports to transfer electrostatic charge across the surface of the polymer, thereby dissipating the charge to ground. The design

dissipates charge through surface conduction; conducting through the volume to a nonconductive material would not increase the performance of the product.

Noone does not discuss volume resistivity. Embodiments of claims 1 and 13 conduct charge, which may be a charge induced from a nearby lightning strike, through the volume of the polymer jacket to ground. This property of the polymer jacket is referred to as volume resistivity. As known in the art, volume resistivity is defined as the ratio of the dc voltage drop per unit thickness to the amount of current per unit area passing through the material. A basic material property, volume resistivity indicates how readily a material conducts electricity through the bulk of the material. Embodiments of the invention operate through volume conduction. Noone is silent on volume resistivity and there is no indication that certain volume resistivity in Noone would benefit its operation. Noone operates on surface conduction.

A feature of the tubing of claims 1 and 13 is that as the charge is conducted through the volume of the polymer jacket, this charge acts as a catalyst to displace the conducting media in the polymer, and deposits said conductive media onto the inner corrugated tubing. This displacement of conductive media increases the area of conduction, in the charge location, thereby reducing the intensity of the charge in that specific location.

As Noone is silent as to the benefit of volume resistivity, and Noone would not benefit from optimum volume resistivity, Applicant submits that the claimed volume resistivity would not be derived through routine experimentation to arrive at optimum working values. Rather, when faced with the technology and application of Noone, volume resistivity would not be a concern for one of ordinary skill in the art.

Additionally, from a legal perspective the Examiner's type of rejection (the "design choice" analysis) is not proper. This type of "design choice" analysis has been criticized by the Federal Circuit. See *In re Chu*, 36 USPQ2d 1089, citing *In re Gal*, 25 USPQ2d 1076, (the finding of obvious design choice was precluded where the claimed

structure and the function it performs are different from the prior art). In the present case, the claimed structure provides conduction of charge (which may be from a lightning strike) through a conductive polymer jacket to interior conductive metal corrugated tubing. Noone does not provide this function. Thus, the Examiner's reliance on design choice is not proper.

For the above reasons, claim 1 is patentable over Malcarne and Noone. Claims 2-4, 6, 11 and 12 depend from claim 1 and are patentable over Malcarne and Noone for at least the reasons advanced with respect to claim 1. Claim 13 recites features similar to those in claim 1 and is patentable over Malcarne and Noone for at least the reasons advanced with respect to claim 1.

Claim 5 was rejected under 35 U.S.C. § 103 as being unpatentable over Malcarne in view of Noone and Ostrander. Ostrander was relied upon for disclosing polyether and polyurethane, but fails to cure the deficiencies of Malcarne and Noone discussed above with reference to claim 1. Thus, claim 5 is patentable over Malcarne in view of Noone and Ostrander for at least the reasons advanced with respect to claim 1.

New claims 14 and 15 recite a volume resistively sufficient conduct charge from direct or indirect lightning strikes through the conductive polymer jacket to the conductive, metal corrugated tubing. Neither Malcarne nor Noone teaches or suggests this feature.

In the event the Examiner has any queries regarding the instantly submitted Amendment, Applicant's attorney respectfully requests the courtesy of a telephone conference to discuss any matters in need of attention.

If there are any additional charges with respect to this response or otherwise,
please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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